

Small Fruit Update



Providing Northwest berry growers with the information they need when they need it.

The Small Fruit Update is sent out weekly during the growing season by [Peerbolt Crop Management](#) and is funded entirely by the Northwest berry growers and industry through their commissions and councils.

June 10, 2014

Week 24

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Monitoring berries for SWD larvae in the field

[We have created a video of this larvae-checking method.](#) It's from 2010 but still pretty good.

- Put a sample of fruit to be tested (Caneberries/blueberries ~50 per sample) in a gallon size sealable plastic bag.
- Pour in enough salt water solution to allow the fruit to float (solution is: 1 cup of salt per gallon of water). Mark bag with field code/date. Gently crush/break open fruit.
- For a quick check in the field after a designated period of time (at least 15 minutes) hold the baggie up to light. This helps to see the larvae in the solution.
- For a more thorough examination, after a designated period of time (at least 15 minutes), pour the fruit and salt solution out into a shallow tray and use a piece of wire mesh screen to hold the fruit down making it easier to separate the larvae from the fruit.

[The Weather Cafe](#) by Rufus La Lone [Small Fruit Cold Storage report](#)

Besides all the strawberries, there's a lot of other berry coloring going on this week in the Willamette Valley:

- **Blueberries:** A few Earliblues are picking. Duke, Spartan, and Reka have color.
- **Blackberries:** Silvans, Black Diamonds, Kotatas and Marions are all showing red.
- **Raspberries:** Some early fresh market cultivars are being picked (not many). Meekers and others have color.

Water deficits are the biggest threat to crop quality. Do what you can to keep soil moisture up.

... then there's labor. There's hope more people will be on the way from California this week as blueberries tail off down there and schools go on summer vacation. It's tight.

Other notes for this week:

1) Two Strawberry field days are happening:

- **June 11 — OSU Strawberry Open House** ~ 1:00-4:30 pm, North [Willamette Research and Extension Center](#) (NWREC) [Click here](#) for full information.
- **June 12 — WSU Strawberry Field Day** ~ 1:00-3:00 pm, WSU Goss Farm (formerly Farm 5), 15403 Bowman-Hilton Road, Puyallup. For information contact [Dr. Pat Moore](#), 253-445-4525.

2) The Capital Press has an article on...me: [Peerbolt links farmers, researchers](#) (6/6, Capital Press)

Tom Peerbolt, SFU Editor

Disseminating information for: Washington

[Washington Red Raspberry Commission](#)
[Washington Blueberry Commission](#)
[Washington Strawberry Commission](#)

Oregon

[Oregon Raspberry and Blackberry Commission](#)
[Oregon Blueberry Commission](#)
[Oregon Strawberry Commission](#)

British Columbia

[Fraser Valley Strawberry Growers Association](#)
[Raspberry Industry Development Council](#)
[B.C. Blueberry Council](#)

National

[North American Blueberry Council](#)



Regional reports

British Columbia, Fraser Valley

The environmental conditions the past couple of months have been almost as good as it gets. I think generally all small fruit crops look as healthy (and happy if that's possible) as we could wish for. No big heat stresses and no pro-longed wet, cold periods. Things are a little dry right now but with irrigation on the go and some possible light showers this week, growth and fruit development should continue in the right direction.

- **Blueberries:** (Monday, 6/9) We're continuing with aphid sprays in blues, most of which will be finished this week. The last nitrogen is going on as well in anticipation of some potential showers this week. The weather has been really great but the cool nights have slowed down fruit development a bit. So what I thought would be an early season, now is being pushed more into early July for the majority to start pick. Some of the light sandy soil areas may see hand-picks start by end of June but for the most part the first week of July seems more likely.
- **Raspberries:** (Monday, 6/9) Raspberries continue to look good with ideal conditions for pollination continuing. Rain shower forecasts for this week may interrupt this to some extent but we would rather deal with rain now than during the first week of pick.
- **Strawberries/raspberries/blueberries:** (Monday, 6/9) Strawberry picking is on about 4 days earlier than normal, now in the first full week in the Eastern expanses of the Fraser Valley, but the cool period coming will get us back to a perfectly normal year. Thus far we are up to date on sprays, SWD is lying low for the most part and even the weak raspberry fields are starting to turn to first ripe berries. Just about all the fruit on blues that had a touch of rot, have now fallen off, dry. Worst thus far are the birds..... and the weevils. Now if we could just get the birds to eat the weevils and not the berries...

Northern Washington, Whatcom County

- **Blueberries/strawberries:** (Tuesday, 6/10) Labor is definitely tight. I think it might be tight enough to effect the fresh volumes. Irrigation definitely needed for crop sizing and fill. Many are late getting it going. Strawberries are coming along with some picking fresh now and process will be coming soon. Well ahead of last year. In comparison, blues do not look to be that far ahead of last year. Aphids showing signs of activity in many places. And so it goes.

Western Oregon, Willamette Valley

- **Strawberries:** (Monday, 6/9) Processed strawberry harvest in the Willamette Valley is in full swing right now. Hoods and Totems are on their second picks (maybe even third for Hood) in some fields. Quality and price have been excellent. Labor has been, well, less than excellent. Just not enough. The weather has been ideal for holding the fruit. Main issue is soil moisture. Don't want to water while there's ripe fruit in the field but have to in some situations. That's where it'd help to have adequate labor to get the fruit out faster and get the water on knowing we could get back in the field ASAP.



- **Blackberries:** (Tuesday, 6/9) Looks to me like Black Diamond harvest will start June 23, with Marions starting June 30, give or take a few days. Degree days say we are ahead of last year by a couple days so am still expecting similar timing to last year, which was June 24 for Black Diamond and June 30 for Marion. Bloom was pretty condensed so expect a compact harvest, one less trip across the field? Starting to get a lot of red in both, sizing looks good, especially the guys with water going. We are very dry, weather service says our area is in a moderate drought. Time to start thinking about clean up sprays. Bloom sprays going on evergreens.



Blueberry floral bud development over the past week & compared to same week in 2013

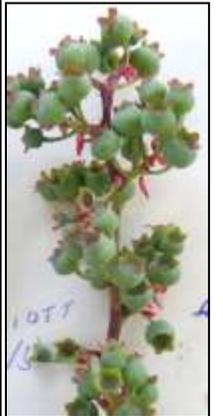
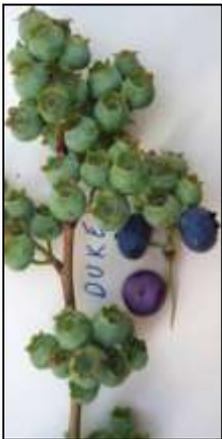
Notes:

- The same fields are being sampled each week are in the Forest Grove/Hillsboro area.
- Seems like fields across the Willamette Valley that I'm seeing are closer in development than it appeared earlier in the season. I'm dropping the comment about other areas being as much as a week ahead of the fields illustrated.
- This is an indication of stage of development only. Keep in mind that variations due to the subjective nature of these protocols are part of the process.

* On Aurora: The clusters show red on top but complete green on the bottom. Quite different coloring pattern from other cultivars. They aren't as developed as the photo coloring alone would indicate.

Northwestern Willamette Valley

Top – 6/6/14 Middle – 5/31/14 Bottom – 6/7/13

Patriot <i>Late green fruit</i>	Duke <i>Fruit coloring</i>	Draper <i>Late green fruit</i>	Liberty <i>Green fruit</i>	Aurora* <i>Green fruit</i>	Elliott <i>Green fruit</i>
					
Week 23, 2014					
					
Week 22, 2014					
					
Week 23, 2013					
Patriot <i>Fruit Coloring</i>	Duke <i>Fruit coloring</i>	Draper <i>Late green fruit</i>	Liberty <i>Late green fruit</i>		

SWD report for week 24

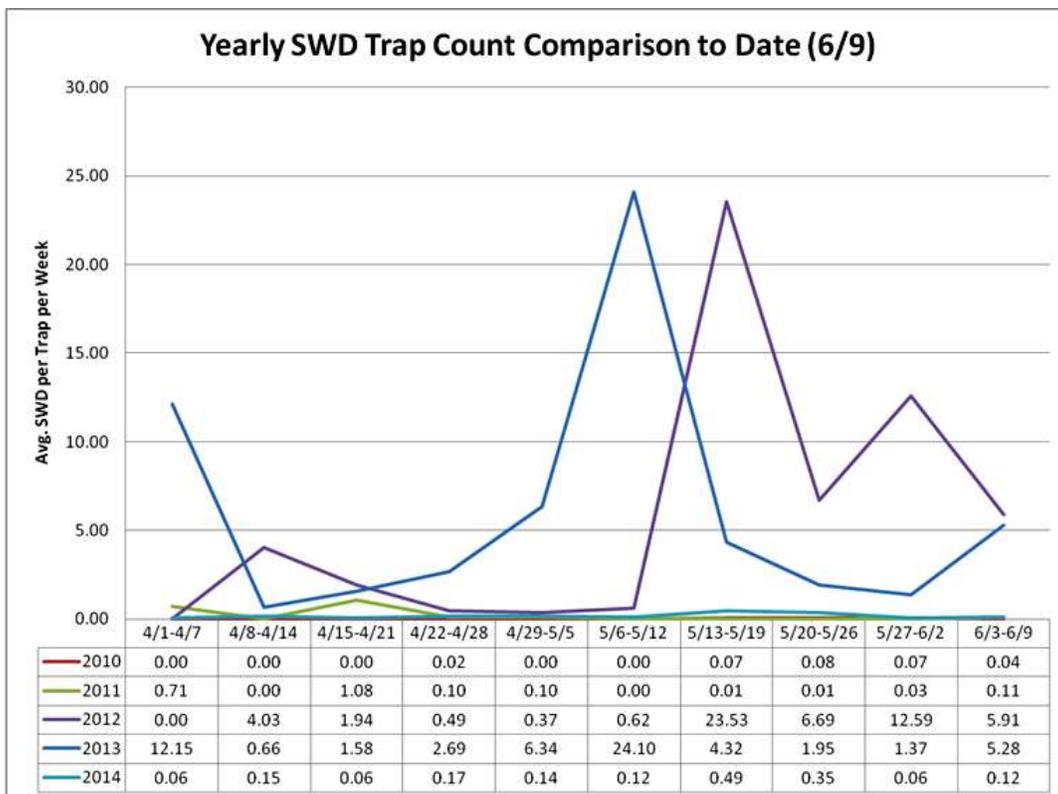
Willamette Valley public scouting program trap count comparisons

Season to date, 2010-2014

Note: This chart is an indicator of SWD population levels as compared from year to year but is *just an indicator*. We have changed some fields, some trap locations, and some trap baits and types as well as other factors that influence trap catches over the last five years as we learn and adapt. This is a dynamic, developing process—our ability to monitor and forecast this pest and the risks it poses has improved each year. Keep that in mind when interpreting this information.

Comments

- When fruit starts coloring we begin taking fruit samples to check for larvae along with checking the adult traps.
- The ripening fruit competes with the adult traps for the flies attention so the numbers from these traps becomes a less accurate method for monitoring for SWD presence.
- Heat spikes (above mid-'80 F/30C) can cause high adult trap counts without necessarily having a corresponding increase in larval infestations. This is due to heat increasing adult numbers while suppressing ovipositioning.
- Total traps checked this week: 66. Total SWD adults caught: 8.
- The 2014 monitoring pattern remains very similar to 2010 and 2011.



Potential SWD host status in the Northwest

- Processed strawberry harvest has started in Oregon and SW Washington. Blueberries and caneberries are showing color.
- Observed ripening fruit that are potential hosts are now expanding greatly and include cherries and strawberries in the fields as well as salmonberry, dewberry, Indian laurel, wild cherries and figs in border areas and landscapes.

Take home messages

- **Potential Hosts:** Many potential SWD fruit hosts, both wild and cultivated, are reaching the ripening stage when they are susceptible to infestation.
- **SWD Population Status:** All indications are that the SWD breeding population size right now is much smaller than in 2012 and 2013 due to the cold winter.
- **Environmental Factors:** Our moderate temperatures (in the 70s F/20-26 C) favor SWD breeding.

- **Damage Risk Assessment:** At this point risk is low.

Each week the risk of economic berry crop damage increases. This is still an insect we have a lot to learn about and there is the potential for unexpected outbreaks in fields with ripe fruit. This is where field history and border habitat can be very useful in determining individual field risk.

Maximum Residue Levels (MRLs) for Most Common Export Markets *(last updated 5/9/14)*

[Blueberries](#) [Caneberries](#) [Strawberries](#)

SWD Management Material Resources

Oregon and Washington *(last updated 2/24/14)*

- **Blueberries:** [SWD pesticide options and information](#)
- **Raspberries and blackberries:** [SWD pesticide options and information](#)
- **Strawberries:** [SWD pesticide options and information](#)

British Columbia

- [Spotted Wing Drosophila \(SWD\) Management in B.C. Berry Crops](#) *last updated 7/3/13. Some newer chemistries not yet listed.*

Grower resources

- [Mid-season weed control all about timing](#) (5/28, Ag Professional)
- [Safely moving farm equipment on public roads can be a challenge](#) (6/5, MSU Extension)

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Industry news/resources

Newsletters/ berry reports

- [BC Blueberry IPM Newsletter](#) (6/8) Weekly by [ES Cropconsult](#). Sponsored by the BC Blueberry Council.
- [Whatcom Ag Monthly](#) Produced by WSU Whatcom County Extension. Includes excellent berry crop information.
- [National Berry Report](#) Daily fresh market berry reports. Hosted by the California Strawberry Commission, this report is generated from data from the USDA Agricultural Marketing Service and is updated daily.
- [Export Market Report](#) (6/6) from General Produce Company
- [Weekly Market Report](#) (6/9) from General Produce Company
- [The Source](#) (6/9) Market reports from *The Produce News*.

Magazine/website compilations

- **The Packer:** [blueberries](#), [blackberries](#), [raspberries](#), [strawberries](#).
Recent stories and fresh market pricing for the various berries from The Packer.
- **Growing Produce:** [recent berry articles](#).
- **Fresh Fruit Portal:** [blueberries](#), [blackberries](#), [raspberries](#), [strawberries](#).
Recent stories for the various berries from Fresh Fruit Portal.

Berry research blogs

- [Strawberries and Caneberries](#) by Mark Bolda, UC Davis Berry Extension Agent. **Recent Entry (6/4): Central Coast Alert: Fusarium Wilt occurring in a number of strawberry fields** *Reports on recent insect and disease research and observations in California.*
- [Team Rubus](#) by Gina Fernandez, North Carolina State Small Fruit Specialist. **Recent Entry (6/4): Field Days in North Carolina in June** *Reports on issues in blackberries and raspberries from the Southeast.*

Research

- [Research looks to keep North Carolina strawberries sustainable, competitive](#) (6/3, SE Farm Press)

Business

- [Curry & Co. inks deals with Canadian blueberry shipper](#) (6/6, The Packer)
- [Crop protection industry sales up 8.2 percent in 2013](#) (5/27, Western Farm Press)

Politics and Ag

- Opinion: [Immigration reform: An issue Congress cannot afford to overlook](#) (6/9, The Hill)

Labor

- [Sakuma drops H-2A plans; farmworkers continue lawsuit](#) (6/4, Capital Press)

West

- Oregon: [Strawberry consumers seek out venerable Hoods](#) (6/4, Capital Press)

North America

- Georgia: [Late Georgia blueberry deal beginning promotable volume](#) (6/4, The Packer)
- New Jersey: [Weather creates lagging start for Mid-Atlantic produce](#) (6/6, The Packer)
- Michigan: [Southwest Michigan fruit report for June 3](#) (MSU Extension)
- U.S.: [Some holiday favorites running late for Fourth of July](#) (6/5, The Packer)

International

- China: [Joyvio building "reserve army for modern agriculture"](#) (6/5, Fresh Fruit Portal)

Field Days

- **June 11 — OSU Strawberry Open House** ~ 1:00-4:30 pm, North [Willamette Research and Extension Center](#) (NWREC) [Click here](#) for full information.
- **June 12 — WSU Strawberry Field Day** ~ 1:00-3:00 pm, WSU Goss Farm (formerly Farm 5), 15403 Bowman-Hilton Road, Puyallup. For information contact [Dr. Pat Moore](#), 253-445-4525.
- **July 9 — OSU Caneberry Field Day** ~ 1:00-5:00 pm [North Willamette Research and Extension Center](#).
- **July 16 — OSU Blueberry Field Day** ~ 1:00-5:00pm [North Willamette Research and Extension Center](#).
- **July 17 — WSU Raspberry Selection Trials Machine Harvest Field Day** ~ 1-3 pm - Honcoop Farm, Lynden WA. Contact [Pat Moore](#) 253-445-4524 for more information.

Event calendar

- **June 11 — OSU Strawberry Open House** ~ 1:00-4:30 pm, North [Willamette Research and Extension Center](#) (NWREC) [Click here](#) for full information.
- **June 12 — WSU Strawberry Field Day** ~ 1:00-3:00 pm, WSU Goss Farm (formerly Farm 5), 15403 Bowman-Hilton Road, Puyallup For information contact [Dr. Pat Moore](#), 253-445-4525. *"As in past years the field day will consist of an informal wander through the strawberry plots. This will be an opportunity to see some of the recent PNW releases – Puget Crimson, Charm, Sweet Sunrise, Valley Red, Nisga'a, material from some of the other programs and some promising selections. It is also an opportunity to discuss directions for strawberry research."*
- **June 18-19 — Annual Maximum Residue Limit (MRL) Harmonization Workshop** (4/14, Growing Produce) In San Francisco. Organized by the California Specialty Crops Council. [Click here](#) for registration & agenda
- **June 26 — Willamette Valley Berry Fieldman/Grower meeting**, 8am at [North Willamette Research and Extension Center](#) OSU Entomologist, will be joining us to discuss SWD status this season. Call or [email](#) Peerbolt Crop Management for information, 503-289-7287.
- **July 9 — OSU Caneberry Field Day** ~ 1:00-5:00 pm [North Willamette Research and Extension Center](#) (NWREC) *A focus on the breeding program & research on conventional and organic production systems for commercial growers. Details TBA.*
- **July 16 — OSU Blueberry Field Day** ~ 1:00-5:00pm [North Willamette Research and Extension Center](#) (NWREC) *A focus on the breeding program & research on conventional and organic production systems for commercial growers. Details TBA.*
- **July 17 — WSU Raspberry Selection Trials Machine Harvest Field Day** ~ 1-3 pm - Honcoop Farm, Lynden WA. Contact [Pat Moore](#) 253-445-4524 for more information. *We will be harvesting the 2011 and 2012 machine harvesting plantings that day prior to the field day. Harvested fruit from the plots will be on display.*
- **July 20-23 — International Precision Ag Conference** ~ Sacramento, CA. [Click here](#) for article. [Click here](#) for website with all the details.
- **August 20 & 21—North American Strawberry Growers Association** ~ Summer tour, in BC. [Click here](#) for the NARBA website. More details coming soon.
- **November 19 — Oregon Strawberry Commission workshop** "Fresh market strawberries: What it takes to be successful." 8am-7pm, lunch and dinner provided. Admittance is free. Woodburn, OR. More details to follow. Contact lora@peerbolt.com for more info.

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Week 24--- Pest management & field work

Pest Alerts

Time to scout for and treat if needed: **Yellow Rust**, raspberries



Stages of Yellow Rust (from left) spermagonia, aecia, uredinia: It has not yet reached the uredinia stage.
Middle photo by Carolyn Teasdale, others by Tom Peerbolt

- Yellow rust is moving through its spore stages from yellow/orange colored 'blisters' (spermagonia) on the top surface of leaves to a very visible, almost day-glow orange/yellow spore stage (aecia) and, in southern regional fields, the fourth spore stage (uredinia).
- This fourth spore stage (uredinia) appears later in the season as yellow 'dust' on the bottom of leaves. This last stage is the one that multiplies quickly and can quickly defoliate canes if left untreated.
- Evaluate disease incidence and stage to determine whether (and when) fungicide applications are warranted.

Scout for: Green Berry Botrytis Fruit Rot, blueberries



Photos are from the May 24th, 2013 [Blueberry IPM Newsletter](#) published by [E.S. Cropconsult](#) for the [BC Blueberry Council](#). The weather hasn't been conducive to green berry botrytis so far. Cooler and wetter would see an increase.

- Fungicide treatments are of limited efficacy in controlling the infections at the green fruit stage.

Time now to prevent: Ripe Fruit Rots, Blueberries

Preventative fungicide applications: [Alternaria Fruit Rot](#)

As blueberry bloom starts to finish, it's time to consider whether you need to prevent Alternaria and Anthracnose problems from showing up in the fruit. Alternaria can infect the fruit beginning at the end of bloom and throughout the fruit development stage, up until harvest. Infections remain latent until the fruit ripens. Infected fruits exhibit a shriveling or caving-in of the side of the berry and become watery in storage.



Alternaria fruit rot photos by Caroline Teasdale

Preventative fungicide applications: [Anthracnose Ripe Rot](#)

If you've had problems with Anthracnose, prevention of a reoccurrence begins at petal fall. Symptoms: First, blighting of shoot tips; then, a few flowers turn brown or black. Leaf spots, when they occur, are large or small and roughly circular. As infected berries ripen, the flower end may soften and pucker. Under warm and rainy conditions, salmon-colored spore masses form on infected berries. After harvest, spore masses form rapidly on infected fruit when in cellophane-covered baskets or in plastic clamshell packs.

Anthracnose fruit rot photos by Caroline Teasdale



Time to scout for (and take immediate action if found and verified): [Scorch virus](#), blueberries

- Symptoms are visible in infected fields.
- This disease is vectored aphids.
- Infected bushes ***do not*** return to productivity and should be removed ASAP to limit the disease spread.
- [Instructions on how to submit blueberry tissue to the BC Ministry of Agriculture Plant Diagnostic lab for insect or disease testing.](#)

Time to scout for (and not do a darn thing about if verified): [Shock virus](#), blueberries

- Symptoms are visible in many fields.
- This disease is vectored by pollinators.
- There is no treatment or cure.
- Infected bushes generally display symptoms for one year and then return to productivity.

Time to scout for and evaluate if management action is needed: [Powdery Mildew](#), **strawberries**

- Dry, warm, humid conditions favor powdery mildew in strawberries.

Additional, Ongoing Pest Information

Diseases

- **Scout for:** [Mummyberry](#) infected fruit in blueberries.
- **Scout for:** [Phytophthora Root Rot](#) **raspberries** *Look for primocane collapse.*
- **Scout for:** [Purple Blotch](#) **blackberries.**

Insects/Mites

- **Scout for:** [Azalea Bark Scale](#), **blueberries.** This scale's telltale bright white egg sacs on the lower branches of infested plants are now apparent in some southern blueberry fields.
- **Scout for:** [Raspberry Beetle](#), **northern raspberries.** This small beetle can cause fruit damage and be a major contaminant in northern raspberry fields. Leaf feeding pattern is very distinctive.
- **Scout for:** **Root Weevils, strawberries & blueberries.** [Black Vine](#), [Rough Strawberry](#), [Strawberry Root Weevils](#) are now being recovered from some fields.
- **Scout for:** [Blueberry Gall Midge](#), **blueberries.** Tip damage from this midge is showing up in blueberries. Damage is usually deemed to not be economic except in specific situations like new vigorous fields where gall midge can occasionally cause too much stunting of new growth.
- **Scout for:** **Mites in raspberries (northern growing areas):** [Twospotted mites](#) [Yellow mites](#)
- **Scout for:** [Strawberry Crown Moth](#) **southern strawberries:** Infested plants will have a weakened crown and will often break off with a pull on the top growth.

Crop Work

All crops

- Vole management.
- Weed management.
- Fertilizer program.
- Water management.
- Can put out monitoring traps for Spotted Wing Drosophila.

Blueberries

- *If ripe/coloring fruit is in field, can begin treating for prevention of SWD infestation.*
- After petal fall, can treat for alternaria and anthracnose prevention if needed.
- Scout for [Mummyberry](#) infected fruit.
- Stay on top of aphid management where Scorch virus transmission is an issue.
- Scout for [leafroller larvae](#) & treat as needed.
- Scout for virus symptoms & send in samples for testing as needed ([Shock virus](#); [Scorch virus](#)).
- Scout for [winter moth/Bruce spanworm](#) larvae.
- Scout for scale insects.
- Scout for weevil notching.
- Scout for azalea bark scale in southern blueberries
- Scout for blueberry gall midge damage.
- Can apply fungicides for fruit/blossom rot from 10% bloom through the end of bloom.
- Can put out pheromone traps to monitor for leafrollers.
- Scout for berry symptoms like green fruit botrytis, hail damage, mummyberry, etc.

Blackberries

- *If ripe/coloring fruit is in field, can begin treating for prevention of SWD infestation.*
- Have bees in by 10% bloom.
- Can put out pheromone trap to monitor for leafrollers.
- Can apply fungicides for fruit/blossom rot from 10% bloom through the end of bloom.
- Scout for virus symptoms and send in samples for testing as needed.

Evergreen Blackberries

- Scout for blackberry rust and treat as needed.

Raspberries

- *If ripe/coloring fruit is in field, can begin treating for prevention of SWD infestation.*
- Scout for raspberry beetle feeding symptoms
- Scout for Yellow Rust and assess treatment options.
- Scout for yellow mites and [twospotted mites](#).
- Scout for virus symptoms & send in samples for testing as needed.
- Can apply a phosphite material for stronger root growth and root rot prevention.
- Have bees in by 10% bloom.
- Can apply fungicides for fruit/blossom rot from 10% bloom through the end of bloom.
- Can put out pheromone traps to monitor for leafrollers.
- Scout for Cane Blight and Cane Botrytis symptoms.
- Can put out pheromone traps to monitor for leafrollers.

Strawberries

- *After harvest, can treat for SWD control if field is adjacent to other susceptible, ripening, crops.*
- (Southern strawberries) Can scout for Strawberry Crown Moth larvae.
- Scout for fruit damage symptoms like cat facing, slug damage, anthracnose, etc.
- Monitor ripe and ripening fruit for SWD larvae.
- Scout for weevil adults & notching.
- Can apply fungicides for fruit/blossom rot from 10% bloom through the end of bloom.
- Can apply slug bait.
- Scout for Powdery Mildew and treat as needed.
- Scout for Two Spotted Spider Mites and predatory, beneficial mites.
- Scout for aphids.
- In day neutral varieties scout for lygus bug and assess need for treatment.

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Archived Small Fruit Updates

(For older Updates [click here](#).)

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